CLAIMS

1. A method for measuring the concentration of at least one analyte with the aid of an analyte-specific oxidase immobilized in or on an immersion sensor, wherein said analyte diffuses from a surface of said sensor into said enzyme region via at least one channel which limits diffusion and contains water.

2. The method as set forth in claim 1, wherein the analyte flows out of a surrounding matrix into the diffusion channel over an increased effective area as compared to the cross-section of a contact area with the enzyme layer and the diffusion-limiting channel.

3. The method as set forth in claim 1, wherein the diffusion channel is filled, at the surface or completely, with a hydrophilic substance having a low molecular size exclusion limit and a high permeability to the analyte.

4. A method for measuring the concentration of at least one analyte with the aid of an analyte-specific oxidase immobilized in or on an immersion sensor, wherein the oxygen needed for oxidizing the analyte diffuses from within, directly from a gas-filled space or via an oxygen-permeable membrane, into the enzyme region.

5. The method as set forth in claim 4, wherein oxygen from the atmosphere or from an oxygen reservoir is guided into said gas-filled space.

6. The method as set forth in claim 4, wherein the oxygen consumption associated with the enzyme reaction is detected by measuring the pressure in the gas phase.

7. The method as set forth in claim 4, wherein hydrogen peroxide, a volatile reaction product of the hydrogen peroxide or oxygen, is detected in an external gas analysis space connected to the gas-filled space by convection or diffusion.

8. The method as set forth in claim 1, wherein an enzyme reaction is measured amperometrically in the enzyme layer.

9. An immersion sensor for measuring the concentration of at least one analyte with the aid of an oxidase, wherein at least one space for gaseous oxygen is formed in said immersion sensor, said space bordering the enzyme region, directly or via an oxygen-permeable material, from within.

10. The immersion sensor as set forth in claim 9, wherein the enzyme region contains water.

11. The immersion sensor as set forth in claim 10, wherein the space for the oxygen is connected to one of the atmosphere or a gas reservoir containing oxygen.

12. The immersion sensor as set forth in claim 11, wherein said gas reservoir and the space containing gas exhibit a pressure burden with respect to atmospheric pressure.

13. The immersion sensor as set forth in claim 10, wherein the space for the oxygen includes hydrophobic solid surfaces which generate a wetting barrier for aqueous solutions and water.

14. The immersion sensor as set forth in claim 13, wherein the space for the oxygen is filled in by a porous film made of polypropylene.

15. The immersion sensor as set forth in claim 10, wherein the enzyme region is situated on or in the wall of a hollow fiber.

16. An immersion sensor for measuring the concentration of at least one analyte with the aid of an oxidase, wherein said immersion sensor comprises said oxidase in an enzyme region covered by an analyte-impermeable material and connected to the surface of the sensor via at least one channel which contains water and is permeable to the analyte, but due to its geometry limits diffusion.

17. The immersion sensor as set forth in claim 16, wherein the enzyme region contains water.

18. The immersion sensor as set forth in claim 17, wherein at least one diffusion-limiting channel leads through impermeable material of the immersion sensor.

19. The immersion sensor as set forth in claim 17, wherein said at least one diffusion-limiting channel is filled, on or near the surface of the sensor, with a porous substance which is impermeable to proteins.

20. The immersion sensor as set forth in claim 17, wherein on the surface of the sensor, the channel passes into a protein-impermeable, hydrophilic layer and/or the channel cross-section is larger than in the diffusion-limiting part.

21. A method for measuring the concentration of at least one analyte with the aid of an analyte-specific enzyme associated with an immersion sensor, wherein said analyte diffuses from a surface of said sensor into said enzyme via at least one channel.

22. The method according to claim 21, wherein the at least one channel contains water.

23. The method according to claim 21, wherein the enzyme is an oxidase.